Naval Education and Training Command

NAVEDTRA 72364
June 1993
0503-LP-477-2800

Nonresident Training Course (NRTC)

Aviation Boatswain's Mate F 3 & 2

Only one answer sheet is included in the NRTC. Reproduce the required number of sheets you need or get answer sheets from your ESO or designated officer.

AVIATION BOATSWAIN'S MATE F 3 & 2
NAVEDTRA 72364

Prepared by the Naval Education and Training Program Management
Support Activity, Pensacola, Florida

Congratulations! By enrolling in this course, you have demonstrated a desire to improve yourself and the Navy. Remember, however, this self-study course is only one part of the total Navy training program. Practical experience, schools, selected reading, and your desire to succeed are also necessary to successfully round out a fully meaningful training program. You have taken an important step in self-improvement. Keep up the good work,

HOW TO COMPLETE THIS COURSE SUCCESSFULLY

ERRATA: If an errata comes with this course, make all indicated changes or corrections before you start any assignment. Do not change or correct the Training Manual (TRAMAN) or assignments in any other way.

TEXTBOOK ASSIGNMENT: The TRAMAN for this *course is AVIATION BOATSWAIN'S MATE* F, NAVEDTRA 12364. The TRAMAN pages that you are to study are listed at the beginning of each assignment. Study these pages carefully before attempting to answer the questions in the course. Pay close attention to tables and illustrations because they contain information that will help you understand the text. Read the learning objectives provided at the beginning of each chapter or topic in the text and/or preceding each set of questions in the course. Learning objectives state what you should be able to do after studying the material. Answering the questions correctly helps you accomplish the objectives.

BLACK DOT INFORMATION: Black dots (●) may be used in the text and correspondence course to emphasize important or supplemental information and to highlight instructions for answering certain questions. Read these black dot entries carefully; they will help you answer the questions and understand the material.

SELECTING YOUR ANSWERS: After studying the TRAMAN, you should be ready to answer the questions in the assignment. Read each question carefully then select the BEST answer. Be sure to select your answer from the subject matter in the TRAMAN. You may refer freely to the TRAMAN and seek advice and information from others on problems that may arise in the course. However, the answers must be the result of your own work and decisions. You are prohibited from referring to or copying the answers of others and from giving answers to anyone else taking the same course. Failure to follow these rules can result in suspension from the course and disciplinary action.

SUBMITTING COMPLETED ANSWER SHEETS: complete all assignment as quickly as possible to derive maximum benefit from the course. As a minimum, you must submit at least one assignment per month. This is a requirement established by the Chief of Naval Education and Training. Failure to meet this requirement could result in disenrollment from the course.

TYPES OF ANSWER SHEETS: If you are a U.S. Navy enlisted member on active duty or a drilling U.S. Naval Reserve enlisted member, you should use the answer sheet attached at the end of this course and follow the instructions in section A below. If you are an enlisted U.S. Naval Reserve member who is not attached to a drilling unit or if you are an officer, a civilian, or a member of the U.S. Army, Air Force, Marine Corps, or Coast Guard, you should use the Automatic Data Processing (ADP) answer sheets included in the course package and follow the instructions in section B.

A. Manually Scored Answer Sheets

If you are a U.S. Navy enlisted member on active duty or attached to a U.S. Naval Reserve drilling unit, your course will be administeredby your local command. You must use the answer sheet designed for

Ordering Number 0502-LP-216-0100. You may get a supply of the forms from your Educational Services Officer (ESO), or you may reproduce the one in the back of this course booklet. DO NOT USE THIS FORM FOR COURSES ADMINISTERED BY NETPMSA.

Recording Information on the Manually Scored Answer Sheets: As you complete each assignment, submit the completed answer sheet to your ESO for grading. You may submit more than one answer sheet at a time. Remember, you must submit at least one assignment each month.

Grading: Your ESO will grade each answer sheet and notify you of any incorrect answers. The passing score for each assignment is 3.2. If you receive less than 3.2 on any assignment, the ESO will list the questions you answered incorrectly and give you an answer sheet marked "RESUBMIT." You must redo the assignment and complete the RESUBMIT answer sheet. The maximum score you can receive for a resubmitted assignment is 3.2.

Course Completion: After you have submitted all the answer sheets and have earned at least 3.2 on each assignment, your command should give you credit for this course by making the appropriate entry in your service record.

Student questions: If you have questions concerning the administration of this course, consult your ESO.

B. ADP Answer Sheets

If you are an enlisted U.S. Naval Reserve member who is not attached to a drilling reserve unit or if you are an officer, a civilian or a member of the U.S. Army, Air Force, Marine Corps, or Coast Guard, use the ADP answer sheets provided in your course package. You should use one blank original ADP answer sheet for each assignment. Use only the original ADP answer sheet provided in your course package; NETPMSA will not accept reproductions.

Recording Information on the ADP answers Sheets: Follow the “MARKING INSTRUCTIONS” on each answer sheet. Be sure that blocks 1, 2, and 3 are filled in correctly. This information is necessary for your course to be properly processed and for you to receive credit for your work.

As you work the course, be sure to mark your answers in the course booklet because your answer sheets will not be returned to you. When you have completed an assignmenet, transfer your answer from the course booklet to the answer sheet.

Mailing the Completed ADP Answer Sheets: Upon completing an assignment, mail the completed answer sheet to:

COMMANDING OFFICER
NETPMSA CODE 074
6490 SAUFLEY FIELD RD
PENSACOLA FL 32559-5000

Use envelopes to mail your answer sheets. You must provide your own envelopes or request them from your ESO. You may enclose more than one answer sheet in a single answer. Remember, regardless of how many answer sheets you submit at a time, NETPMSA should receive at least one assignment a month.

NOTE: DO NOT USE THE COURSE COMMENTS PAGE AS AN ENVELOPE FOR RETURNING ANSWER SHEETS OR OTHER COURSE MATERIALS.

Grading: NETPMSA will grade the answer sheets and notify you by letter concerning your grade for each assignment, your incorect answer, and your final grade. The passing score for each assignment is 3.2. If you receive less than 3.2 on any assignment, you must rework the assignment. NETPMSA will enclose a new ADP answer sheet in the letter notifying you of the questions you answered incorrectly. You will be required to redo the assignment and resubmit a new answer sheet. The maximum score you can receive for a resubmitted assignment is 3.2.

Course Completion: When you complete the last assignment, fill out the "Course Completion" form in the back of the course and enclose it with your last answer sheet. NETPMSA will issue you a letter certifying that you satisfactorily completed the course. You should make sure that credit for the course is recorded in your service record. YOU MAY RETAIN THE TEXT.

NOTE: YOUR OFFICIAL COURSE COMPLETION DATE WILL BE THE DATE YOUR LAST ASSIGNMENT IS PROCESSED THROUGH THE NETPMSA ADP SYSTEM--NOT THE DATE YOU DEPOSIT THE LAST ASSIGNMENT IN THE MAIL. This is especially important if you are taking the course for Naval Reserve retirement credit. You must mail your answer sheets at least 60 days before your anniversary date. This will provide you with enough time for delays in the mail or reworking failed assignment. DO NOT MAIL YOUR ASSIGNMENTS TO THE NAVAL RESERVE PERSONNEL COMMAND (NRPC).

Student Questions: Refer questions concerning this course to NETPMSA by mail (use the address on page ii) or by telephone: DSN 922-1366 or commercial (904) 452-1366.

NAVAL RESERVE RETIREMENT CREDIT

If you are a member of the Naval Reserve, you will receive retirement points if you are authorized to receive them under current directives governing retirement of Naval Reserve personnel. For the purpose of Naval Reserve retirement, this edition of the course is evaluated at 9 points. These points will be credited to you upon your satisfactory completion of the entire course.

NOTE: YOUR OFFICIAL COURSE COMPLETION DATE WILL BE THE DATE YOUR LAST ASSIGNMENT IS PROCESSED THROUGH THE NETPMSA ADP SYSTEM--NOT THE DATE YOU DEPOSIT THE LAST ASSIGNMENT IN THE MAIL. Refer to the Course Completion paragraph under section b. ADP Answer Sheets.

COURSE OBJECTIVES

Upon completing this course, you will demonstrate a knowledge of afloat and ashore fuels division organization, general maintenance equipment, quality surveillance, JP-5 afloat below deck systems and operations, JP-5 afloat flight deck systems operations, afloat lube oil and MOGAS systems and operation, ashore systems and operations, and administration.

Naval courses may include several types of questions-multiple-choice, true-false, matching, etc. The questions are not grouped by type but by subject matter. They are presented in the same general sequence as the textbook material upon which they are based. This presentation is designed to preserve continuity of thought, permitting step-by-step development of ideas, Not all courses use all of the types of questions available. The student can readily identify the type of each question, and the action required, by inspection of the samples given below.

MULTIPLE-CHOICE QUESTIONS

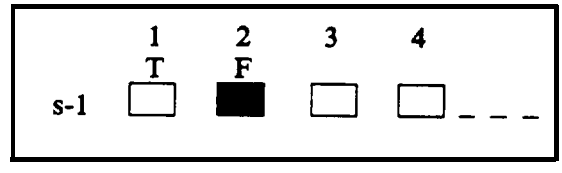
Each question contains several alternatives, one of which provides the best answer to the question. Select the best alternative, and blacken the appropriate box on the answer sheet.

SAMPLE

s-1. Who was the first person appointed Secretary of Defense under the National Security Act of 1947?

1. George Marshall
2. James Forrestal
3. Chester Nimitz
4. William Halsey

Indicate in this way on the answer sheet:



TRUE-FALSE QUESTIONS

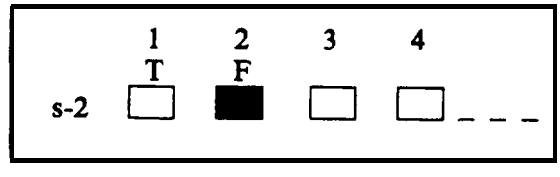
Mark each statement true or false as indicated below. If any Part of the statement is false the statement is to be considered false. Make the decision, and blacken the appropriate box on the answer sheet.

SAMPLE

s-2. All naval officers are authorized to correspond officially with any systems command of the Department of the Navy without their respective commanding officer's endorsement.

1. True
2. False

Indicate in this way on the answer sheet:



MATCHING QUESTIONS

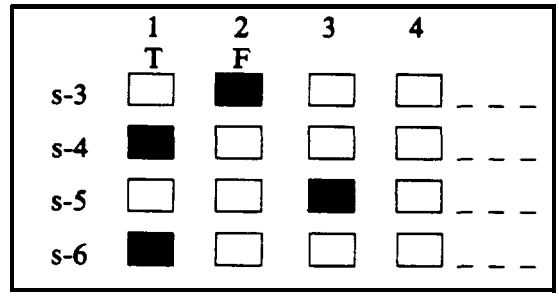
Each set of questions consists of two columns, each listing words, phrases or sentences. The task is to select the item in column B which is the best match for the item in column A that is being considered. Items in column B maybe used once, more than once, or not at all. Specific instructions are given with each set of questions. Select the numbers identifying the answers and blacken the appropriate boxes on the answer sheet.

SAMPLE

In questions s-3 through s-6, match the name of the shipboard officer in column A by selecting from column B the name of the department in which the officer functions. Some responses maybe used once, more than once. or not at all.

A. OFFICER	B. DEPARTMENT
s-3. Damage Control Assistant	1. Operations Department
s-4. CIC Officer	2. Engineering Department
s-5. Disbursing Officer	3. Supply Department
s-6. Communications Officer	

Indicate in this way on the answer sheet:



ASSIGNMENT 1

Textbook Assignment: "Afloat and Ashore Fuels Division Organization," "General Maintenance Equipment," and "Quality Surveillance," chapters 1, 2, and 3. pages 1-1 through 3-9.

1-1. The information contained In the ABF TRAMAN is written to provide minimum coverage of which of the following areas?

1. Examination subjects and military factors
2. Occupational standards
3. Practical and military factors
4. Knowledge factors

1-2. What publication contains occupational standards for the ABF rating?

1. List of Training Manuals and Correspondence Courses, NAVEDTRA 12061
2. Record of Practical Factors, NAVEDTRA 1414/1
3. Bibliography for Advancement Study, NAVEDTRA 12052
4. Advancement Handbook for Petty Officers, Aviation Boatswain's Mate (Fuels), NAVEDTRA 71201

1-3. The Quality Surveillance Laboratory is a branch of what work center?

1. Flight deck
2. Below deck
3. Flight deck repair
4. V-4 Division office

1-4. Which of the following watches is responsible for the security of the AvFuels system aboard ship?

1. Officer of the Deck
2. Junior Officer of the Deck (JOOD)
3. Air Department Integrity Watch
4. Aviation Fuels Security Watch

1-5. Which manual contains the PQS requirements for the ABF?

1. Air Department Standard Operating Procedures (COMNAVAIRPAC/LANTINST 3100-4)
2. CV NATOPS Manual (NAVAIR 00-8OT-105)
3. PQS for Air Department Aviation Fuels Afloat (NAVEDTRA 43426-4A)
4. Aircraft Refueling NATOPS Manual (NAVAIR 00-80T-109)

1-6. The Aviation Fuels Division ashore is a division of which department?

1. Supply Department
2. Air Department
3. Maintenance Department
4. Aircraft Intermediate Maintenance Department

1-7. What NAVEDTRA manual contains additional information on tools and their use?

1. 10015-B2
2. 12085
3. 10067-A
4. 16730-B1

1-8. When you use a standard screwdriver, the end of the screwdriver should fill at least how much of the screw slot to ensure proper fit?

1. 100%
2. 95%
3. 85%
4. 75%

1-9. When you use a Phillips screwdriver, at least how much of the screw cavity should be filled by the end of the blade to ensure a proper fit?

1. 100%
2. 95%
3. 85%
4. 75%

1-10. What advantage is there in using an adjustable wrench instead of an open-end wrench to tighten or loosen a nut?

1. An adjustable wrench will not damage hard-to-turn nuts
2. An adjustable wrench can be adjusted to fit odd-sized nuts or bolts
3. An adjustable wrench is less likely to be used improperly
4. Either jaw of an adjustable wrench may be adjusted to fit any size or shape nut or bolt

1-11. What important point should you remember when using a pipe wrench?

1. The fixed jaw should provide the twisting force
2. The adjustable jaw should provide the twisting force
3. The fixed jaw should provide the pushing force
4. The adjustable jaw should provide the pushing force

1-12. What type of wrench should you use to loosen or tighten a screw with a recessed head?

1. Strap wrench
2. Socket wrench
3. Spanner wrench
4. Allen wrench

1-13. The size of the opening, for a nut or bolt, is the only factor considered in determining the size of a socket.

1. True
2. False

A. Speed handle

B. T-handle

C. Hinged handle

D. Ratchet handle

FIGURE 1-A

IN ANSWERING QUESTIONS 1-14 THROUGH 1-16, SELECT FROM FIGURE 1-A THE SOCKET HANDLE BEST SUITED FOR THE TASK IN THE STATEMENT.

1-14. Rapidly tighten or loosen nuts or bolts, using a series *of* partial turns .

1. A
2. B
3. C
4. D

1-15. Remove nuts or bolts that are loosened first with another wrench.

1. A
2. B
3. C
4. D

1-16. Apply the most leverage to break loose tight nuts, then remove the nuts rapidly.

1. A
2. B
3. C
4. D

1-17. What is the most commonly used chisel?

1. Cape chisel
2. Round nose chisel
3. Diamond point chisel
4. Flat cold chisel

1-18. What type of file is used to enlarge rectangular shaped holes or slots?

1. Square file
2. Rectangular file
3. Half round file
4. Triangular file

1-19. What tool is principally used for dressing over bruised or rusty threads on screws or bolts?

1. Hand tap
2. Rethreading die
3. Pipe die
4. Round split die

1-20. To remove a broken screw or tap with a spiral extractor. a hole must first be drilled in the screw or tap. How is the proper size of the hole determined? .

1. Visually
2. The drilled hole is to be of equal width as the shaft of tie broken screw or tap
3. The drilled hole is to be of equal width as the top of the broken screw or tap
4. The screw extractor will have the size hole required stamped on it

1-21. What chain hoist is most commonly used by the ABF?

1. Spur gear chain hoist
2. Lever operated chain hoist
3. Come-a-long
4. Ratchet chain hoist

1-22. Most water and aviation fuel lines can be easily repaired using the metallic pipe repair kit. When these repairs are made, in how many minutes can service be restored to the system?

1. 30
2. 45
3. 60
4. 75

1-23. When the resins and hardeners of a plastic patch are mixed together, a chemical reaction begins. "Kickover" will occur at or about what peak temperature?

1. 120°F
2. 135°F
3. 350°F
4. 400°F

1-24. When applying a simple pipe patch, the woven roving cloth should be wrapped around the void cover approximately how many times?

1. Between 2 and 3
2. Between 3 and 4
3. Between 4 and 5
4. Between 5 and 6

1-25. All Navy electrical power tools are required to have what safety feature?

1. Proper grounds
2. Automatic shut offs
3. Insulated handles
4. Built in shields

1-26. What indication does the micrometer setting type of torque wrench give when the desired amount of torque is reached?

1. The socket will disengage completely
2. The indicating needle or pointer will move
3. A click is given off, followed by the handle freely traveling for a short distance
4. The handle will lock

1-27. What term describes the movement between the spindle and the anvil of a micrometer?

1. Approximate distance
2. Set distance
3. Approximate range
4. Range

1-28. The size of a micrometer indicates

1. the size of the largest work it can measure
2. the size of the smallest work it can measure
3. if it requires calibration
4. how often it requires calibration

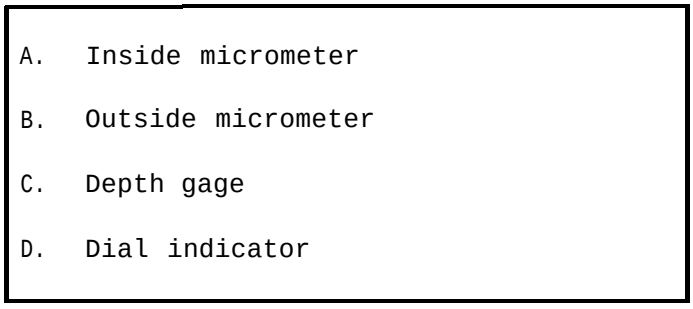


FIGURE 1-B

IN ANSWERING QUESTIONS 1-29 THROUTH 1-31, SELECT FROM FIGURE 1-B THE MEASURING TOOL REQUIRED TO COMPLETE THE TASK IN THE STATEMENT

1-29. Measuring the depth of a slot in a pump shaft.

1. A
2. B
3. C
4. D

1-30. Measuring the inside diameter of a bushing.

1. A
2. B
3. C
4. D

1-31. Measuring the trueness of a pump shaft.

1. A
2. B
3. C
4. D

1-32. If you had to find the tightening sequence for the bolts on a pump casing, where should you look?

1. On the upper half of the casing
2. On the lower half of the casing
3. In the ABF TRAMAN
4. In the applicable technical manual

1-33. What does surface corrosion look like on painted aluminum?

1. White or gray powdery deposits
2. Grey or red powdery deposits
3. An indentation on the surface
4. The paint appears to lift off the surface

1-34. Why is intergranular corrosion more dangerous than other types of corrosion?

1. It spreads faster than other types of corrosion
2. It is not visible on the surface
3. It occurs only in the weaker metals
4. The powder it produces is toxic

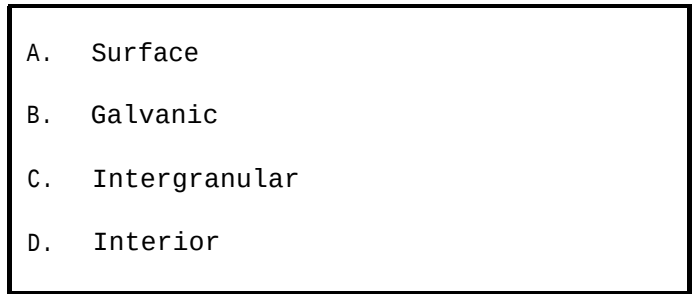


FIGURE 1-C

IN ANSWERING QUESTIONS 1-35 THROUGH 1-37. SELECT FROM FIGURE 1-C THE TYPE OF CORROSION DESCRIBED IN THE STATEMENT

1-35. It spreads through the Interior of the metal.

1. A
2. B
3. C
4. D

1-36. Two different metals are connected and exposed to an electrolyte.

1. A
2. B
3. C
4. D

1-37. The atmosphere produces roughening, etching, or pitting.

1. A
2. B
3. C
4. D

1-38. When finding corrosion on equipment, what should be your first step in treatment?

1. Paint over it with a rust preventive type paint
2. Replace the entire unit
3. Remove the corrosion safely and completely
4. Remove the chips and burrs that collect corrosion residue

1-39. What is the most practical method of controlling metal corrosion?

1. Coat exposed metals with a light coat of grease or oil
2. When painting, apply at least three coats of paint
3. Sandblast metals before painting
4. Consistent preventive maintenance

1-40. Moving parts can be kept free of corrosion by which of the following actions?

1. Painting
2. Applying the proper lubricant
3. Removing the part when not in use
4. Wiping daily with an emery cloth

1-41. What NAVEDTRA manual contains more information on mechanical drawings?

1. 12364
2. 10067-A
3. 10085-B2
4. 10077-F1

1-42. To find the planned maintenance scheduled in your work center for today, you should look at what schedule?

1. Daily schedule
2. Weekly schedule
3. Quarterly schedule
4. Cycle schedule

1-43. Which of the following personnel signs the weekly schedule?

1. LPO
2. LCPO
3. Division officer
4. Department head

1-44. Which of the following forms should you submit to order a replacement maintenance requirement card (MRC)?

1. Feedback Report (category A)
2. Feedback Report (category B)
3. Technical manual deficiency/evaluation Report (TMDER)
4. NAVSEA 4160/1

1-45. For complete information on the 3-M Systems, you need to consult which manual?

1. OPNAVINST 4790.4
2. OPNAVINST 4790.2
3. 3-M-INST 2330.1
4. OPNAVINST 5100.19

1-46. Which manual provides the requirements for an effective QA program?

1. COMNAVAIRPAC/LANTINST 9090.1
2. COMNAVAIRPAC/LANTINST 3100.4
3. OPNAVINST 5100.19
4. OPNAVINST 5090.1

1-47. The quality assurance in-process inspection control document is the Controlled Work Package (CWP).

1. True
2. False

1-48. What OPNAVINST is the general reference for mandatory and advisory safety precautions?

1. OPNAVINST 2030.1
2. OPNAVINST 4790.2
3. OPNAVINST 5090.1
4. OPNAVINST 5100.19

1-49. Who is responsible for reporting any unsafe condition, equipment, material, or other hazards?

1. Commanding officer only
2. Division officer only
3. Work center supervisor only
4. All hands

1-50. How are petroleum fuels in liquid form compared to water?

1. They weigh the same as water at 60°F
2. They are heavier than water
3. They are lighter than water
4. They weigh the same as water at 70°F

1-51. Compared to air, petroleum fuels in vapor form have which of the following characteristics?

1. They weigh the same as air at 60°F
2. They are heavier than air
3. They are lighter than air
4. They weigh the same as air at 70°F

1-52. Petroleum fuel vapors remaining from a spill are extremely dangerous because of which factor?

1. They readily evaporate
2. They tend to remain close to the ground
3. They saturate the ground
4. They saturate porous materials

1-53. What is the NATO number for JP-5?

1. F-40
2. F-42
3. F-44
4. F-46

1-54. What is the minimum flash point of JP-5?

1. 128°F
2. 130°F
3. 140°F
4. 142°F

1-55. If rags or clothing become soaked with JP-5, the JP-5 becomes highly flammable. What term describes this action?

1. Saturation
2. Wicking
3. Candling
4. Soaking

1-56. Because of its high flash point, JP-5 is the only jet fuel authorized for fueling aircraft on Navy ships. When JP-4 or JP-8 is mixed with JP-5, what happens?

1. The flash point of the JP-4 or JP-8 is raised and it becomes safe for shipboard use
2. The flash point of the JP-5 is lowered and it becomes unsafe for shipboard use
3. A chemical reaction takes place that makes both fuels unusable
4. Based on the amount of each fuel in the mixture, either JP-6 or JP-7 is created

1-57. What two terms are generally used to measure volatility?

1. Vapor pressure and viscosity
2. Weight and distillation
3. Viscosity and weight
4. Vapor pressure and distillation

1-58. What is the minimum percentage of gasoline vapor, by volume, for it to burn or explode?

1. 1%
2. 3%
3. 5%
4. 6%

1-59. Because of the range of its vapor pressure, JP-4 almost always has an explosive mixture of vapors above the liquid.

1. True
2. False

1-60. Specific gravity determinations are correlated to what temperature according to ASTM Standard D1250-80?

1. 45°F
2. 60°F
3. 75°F
4. 100°F

1-61. What is the measure of a liquid's resistance to flow called?

1. Volatility
2. Viscosity
3. Flash point
4. Solvency

1-62. Why is a fuel spill on an asphalt surface more damaging than a fuel spill on a concrete surface?

1. The vapors will spread faster on the asphalt surface
2. The asphalt surface will lose its color
3. The fuel will dissolve the asphalt surface
4. The asphalt will react to the fuel and spontaneously ignite

1-63. What term describes the lowest temperature at which a fuel vaporizes enough to form a combustible vapor?

1. Freezing point
2. Flash point
3. Auto-ignition temperature
4. Boiling point

1-64. What does the prolonged inhalation of fuel vapors cause?

1. Dizziness
2. Nausea
3. Death
4. All of the above

1-65. What is the NAVEDTRA number of the *Standard First Aid Training Course* that should be studied by personnel working with fuels?

1. 10018-B
2. 10081-D
3. 12081
4. 10085-A

1-66. From the standpoint of fire and explosion, which fuel is the safest?

1. MOGAS
2. JP-4
3. JP-5
4. JP-8

ASSIGNMENT 2

Textbook Assignment: "Quality Surveillance (continued)," and "JP-5 Afloat Below Deck Systems and Operations," chapters 3 and 4, pages 3-9 through 4-13.

2-1. To be acceptable for delivery to aircraft, jet fuels must not contain more than how much free water?

1. 5 ppm
2. 10 ppm
3. 2 mg/l
4. 5 mg/l

2-2. To be acceptable for delivery to aircraft, jet fuels must not contain more than how much particulate contamination?

1. 5 ppm
2. 10 ppm
3. 2 mg/l
4. 5 mg/l

2-3. What visual standards must jet fuel meet to be acceptable for delivery to aircraft?

1. Clean and bright
2. Clear and free of water
3. Clear and sparkling
4. Clean and colorless

2-4. Which of the following is NOT a form of water contamination found in fuels?

1. Dissolved
2. Hanging
3. Entrained
4. Free

2-5. Which of the following is a definition of entrained water?

1. Dissolved water that has not settled to the bottom
2. Free water that has not settled to the bottom
3. Undissolved water
4. A mixture of fresh and salt water

2-6. What are the most common types of sediment found in fuel?

1. Paint and rubber
2. Metal and rust
3. Rust and sand
4. Sand and metal

2-7. The division between course sediment and fine sediment is made at

1. 1,000 microns
2. 100 microns
3. 10 microns
4. 1 micron

2-8. Although invisible to the naked eye when separated, microscopic particles of foreign matter grouped together in a fuel sample may appear as a

1. speck or spot
2. slight haze
3. residue on the container
4. separate layer

2-9. Which of the following is a description of microbiological growth in fuel?

1. Dark colored, fibrous, and stringy
2. Dark colored, fibrous, and ball-shaped
3. Straw colored, mayonnaise-like, and stringy
4. Straw colored, mayonnaise-like, and ball-shaped

2-10. The development and growth of microorganisms in jet fuel is primarily caused by what contaminant?

1. Sand
2. Free water
3. Rust
4. Dissolved water

2-11. The most common emulsion is the water-in-fuel emulsion. What does it look like?

1. A light-to-heavy cloud
2. A heavy-to-light cloud
3. A dark, reddish haze
4. A brown haze

2-12. A surfactant in fuel causes the fuel and any water that contacts it to mix easier, and also makes it harder to separate.

1. True
2. False

2-13. Surfactants must be present for microbiological growth to occur.

1. True
2. False

2-14. A surfactant problem can usually be detected-by which of the following observations ?

1. Dark, red-brown, or black water in filter/separator sump drains, refueler sump drains, or pipeline low-point drains
2. Storage tanks not yielding a clear, bright fuel after the prescribed settling time
3. Triggering of fuel monitors in delivery systems, if installed
4. All of the above

2-15. What mechanical method. if any, is used to separate commingled fuels?

1. Settling
2. Filtering
3. Centrifuging
4. None

2-16. Commingled fuels are usually caused by

1. leaking valves
2. leaking tanks
3. carelessness during handling
4. intentional mixing

A. All-level

B. Line

C. Representative

D. Composite

FIGURE 2-A

IN ANSWERING QUESTIONS 2-17 THROUGH 2-20, SELECT FROM FIGURE 2-A THE TYPE OF FUEL SAMPLE ASSOCIATED WITH EACH STATEMENT.

2-17. Taken at *or* near the discharge point of a hose immediately before and during the first few minutes of pumping.

1. A
2. B
3. C
4. D

2-18. Consists of one container from a large stock of package fuel of the same grade and age.

1. A
2. B
3. C
4. D

2-19. Contains a blend of individual samples from several tanks that contain the same type of product being sampled.

1. A
2. B
3. C
4. D

2-20. Represents all fuel between the drawoff level and the top surface level of a tank.

1. A
2. B
3. C
4. D

2-21. Fuel sample containers used for sediment and water tests must be made of what construction?

1. Glass with a metal top
2. A nonmetallic material with glass linings
3. Glass with a nonmetallic top
4. Metal with glass linings

2-22. Which of the following is NOT a requirement for the identification of a sample?

1. The location and name of the activity submitting the sample
2. The location of the point where the sample was taken
3. The sample classification
4. Test results

2-23. A representative sampling of a large stock *of* packaged fuel revealed contamination sufficient to make the entire supply suspect. Further samples are taken, labeled, and sent to be tested. What were the first and subsequent samples taken?

1. A composite sample, and the others were routine samples
2. A routine sample, and the others were special samples
3. A routine sample, and the others were composite samples
4. A special sample, and the others were routine samples

2-24. When visually inspecting a fuel sample, What should be the first thing you check?

1. The color of the fuel sample
2. The aroma of the fuel sample
3. The presence of water
4. The presence of sediment

2-25. How should you visually check a fuel sample for sediment?

1. Shake it vigorously to break loose any previously undetected emulsion
2. Whirl it rapidly so the fine particles will be thrown to the outside of the sample container
3. Place the sample container on a level surface and allow the sediment to collect on the sides of the container
4. Swirl it to form a vortex that will draw the sediment to the center-bottom of the container

2-26. If contamination is found in a fuel sample, another sample should be drawn in a new, clean container and the visual inspection repeated.

1. True
2. False

2-27. The contaminated fuel detector (CFD/CCFD) employs which of the following principles?

1. Trapped solid contaminants increase the amount of light passing through the millipore filters
2. Trapped solid contaminants decrease the amount of light passing through the millipore filters
3. Solid contaminants increase the weight of the top millipore filter more than the color variation increases the weight of the bottom one
4. The weight of the solid contaminants trapped between the millipore filters is equal to the amount of solid contaminants in the sample

2-28. Why should two millipore filters be used when a sediment test is conducted?

1. To increase the speed of the filtration
2. In case one is ripped or torn during the filtration cycle
3. To allow the sediment to be trapped between the two
4. To eliminate any fuel color effect and increase accuracy

2-29. What size are the pores of the millipore filter?

1. .60 micron
2. .65 micron
3. .70 micron
4. .75 micron

2-30. When preparing to conduct a sediment test with the CFD/CCFD, you should fill the polyethylene bottle with how much fuel?

1. 500 ml
2. 600 ml
3. 700 ml
4. 800 ml

2-31. The light system of the CFD/CCFD should be warmed up for at least how many minutes before use?

1. 1 to 2
2. 2 to 3
3. 3 to 4
4. 4 to 5

2-32. The light intensity should be adjusted to what reading prior to measuring the millipore filter?

1. 6.0 milliamps
2. 0.6 milliamps
3. 0.06 milliamps
4. 0.006 milliamps

2-33. When measuring the millipore filters, the reading is taken in

1. tenths
2. hundredths
3. thousandths
4. ten thousandths

2-34. The light intensity on the CFD/CCFD is adjusted by use of a

1. thermostat
2. photovoltaic cell
3. hydrostat
4. rheostat

2-35. If adjustment of the light bulb holder is required, what position should the filament on the light bulb be in after the adjustment is made?

1. Up
2. Down
3. Horizontal
4. Vertical

2-36. Fuel with a known contamination measurement must be run through the Wratten filters when calibrating the CFD/CCFD.

1. True
2. False

2-37. In accordance with PMS, at least how often must CFD/CCFD be calibrated?

1. Monthly
2. Quarterly
3. Whenever a part is replaced
4. Both 2 and 3 above

2-38. What is the main function of the AEL Mk I and AEL Mk II?

1. To measure free water
2. To measure dissolved water
3. To detect salt water
4. To detect fresh water

2-39. *A* sample tested indicates that more than 20 ppm water is present. What additional test must you perform?

1. Test a second standard sample and double the results
2. Test another standard sample in the same manner to verify the accuracy of the first sample, then log the results
3. Test a second sample one-half the size of the standard sample and double the results
4. Test another standard sample and divide the results by 2

2-40. At least how often must the "standards" card in the free water detector be replaced in accordance with PMS?

1. Monthly
2. Quarterly
3. Semiannually
4. Annually

2-41. What range thermometer should you use to do a flash point test on JP-5?

1. 10°F to 230°F
2. 20°F to 230°F
3. 10°F to 700°F
4. 100°F to 200°F

2-42. When conducting a flash point test and the fuel to be tested has been heated within 30° to 50°F of the expected flash point. at what multiples should you begin applying the test flame?

1. 2°F
2. 3°F
3. 4°F
4. 10°F

2-43. What does FSII mean?

1. Fuel system initial installation
2. Fuel system internal instruments
3. Fuel system icing inhibitor
4. Fuel system internal inhibitors

2-44. What type of light source, if any, should you use when operating the refractometer?

1. Fluorescent or incandescent bulb
2. Natural sunlight
3. Ultra-violet
4. None

2-45. When the FSII test is conducted, how much fuel is taken from the graduated cylinder and poured into the separator funnel?

1. 2 ml
2. 80 ml
3. 120 ml
4. 160 ml

2-46. After adding 2 ml of water to the fuel for a FSII test, how long must the sample then be shaken?

1. 1 min
2. 2 min
3. 3 min
4. 4 min

2-47. What is the minimum use level for USN and USMC aircraft that require FSII?

1. .01%
2. .02%
3. .03%
4. .04%

2-48. Which of the following USN/USMC aircraft currently do NOT require the use of FSII?

1. s-3
2. US-3
3. SH-60
4. H-3

2-49. What instrument is used to measure the specific gravity of petroleum products?

1. Handimeter
2. Beaker
3. Gravity gage
4. Hydrometer

2-50. Which of the following is NOT considered a major pumping system?

1. Fill and transfer system
2. Stripping system
3. Jet test system
4. Service system

2-51. What is the primary use of a JP-5 storage tank?

1. Bulk stowage of JP-5
2. Amidship emergency tanks
3. Fuel for aircraft service
4. Fuel for only jet test use

2-52. What is the primary use of a JP-5 service tank?

1. To store bulk storage of JP-5
2. To store fue for aircraft servicing
3. To store fuel from the reclaim system
4. To receive fuel from flushing operations

2-53. What section of piping connects the filling connection on the main deck with the transfer main on the seventh deck?

1. Riser
2. Downcomer
3. Branch header
4. Suction header

2-54. What is the primary purpose of the transfer main?

1. To interconnect the forward and the aft storage tanks
2. To interconnect the forward and aft service tanks
3. To connect the designated contaminated tanks with the eductor
4. To interconnect the storage tanks to the service tanks

2-55. What valves are used to isolate the transfer system during secured conditions and to control the flow of JP-5 during various transfer and filling operations?

1. Downcomer valves
2. Bulkhead cutout valves
3. Service pump suction valves
4. Riser cutout valves

2-56. Transfer main branch headers connect the transfer main to

1. storage tank manifolds
2. the opposite transfer main
3. stripping pump suction headers
4. service tank manifolds

2-57. What devices are arranged in the transfer pump’s discharge header to enable both purifiers to operate simultaneously using any two of the three transfer pumps?

1. Two one-way check valves
2. Two transfer pump bypass lines
3. Two cutout valves
4. T-lines

2-58. Valve arrangement in the transfer pump’s discharge header is designed to allow two different transfer operations to be performed at the same time.

1. True
2. False

2-59. The common suction and discharge headers of the transfer pumps are interconnected with the suction and discharge headers of the service pumps. What is the purpose of these two systems being interconnected?

1. To pump fuel directly from the storage tanks to the flight deck for servicing aircraft
2. To use the higher capacity service pumps to pump fuel through the reclamation system quicker
3. To bypass the service filters
4. To use the service pumps for off-loading fuel

2-60. What system provides the capability to reclaim JP-5 received from hose flushings, tank stripping operations, and the initial flow from a FAS?

1. Stripping system
2. Service system
3. Recirculation system
4. Reclamation system

2-61. What is/are the primary use(s) of the motor-driven stripping system?

1. Remove settled water and solids from tanks
2. Completely empty tanks
3. Remove wash water from tanks
4. All of the above

2-62. What is the required height from the bottom of a tank for the motor-driven stripping tailpipe?

1. 1 in.
2. 1 1/2 in.
3. 2 in.
4. 2 1/2 in.

2-63. What is the required height from the bottom of a service tank for the hand-operated stripping tailpipe?

1. 1/4 in.
2. 1/2 in.
3. 3/4 in.
4. 7/8 in.

2-64. What system is designed to deliver clean, clear, and bright JP-5 from the service tanks to aircraft?

1. Transfer system
2. Jet test system
3. Auxiliary system
4. Service system

2-65. The service system is typically designed to be isolated into how many parts?

1. One
2. Two
3. Three
4. Four

2-66. The service tank suction tailpipes should be at least how many inches above the tank bottoms?

1. 24
2. 18
3. 12
4. 10

2-67. The service tank recirculating line terminates how far and in what position from the bottom of the tank?

1. 18 inches vertically
2. 18 inches horizontally
3. 24 inches vertically
4. 24 inches horizontally

2-68. The orifice in the service pump recirculation line allows what percent of the pump’s rated capacity to recirculate back into the tank from which suction is being taken?

1. 5%
2. 10%
3. 12%
4. 15%

2-69. What is the purpose of recirculating fuel through the service pumps?

1. To lubricate the pump
2. To maintain a positive suction
3. To ensure the pump does not exceed its rated capacity
4. To keep the pump cool when no fuel is being drawn topside

2-70. From where does the jet test system receive its fuel?

1. The service pump suction header
2. The transfer main
3. The service filter discharge line
4. The aft, port quadrant distribution riser

2-71. What system provides JP-5 to small boat filling stations?

1. Jet test system
2. Stripping system
3. Auxiliary system
4. Filter drain system

ASSIGNMENT 3

Textbook Assignment: "JP-5 Afloat Below Deck Systems and Operations (continued)," chapter 4, pages 4-13 through 4-65.

3-1. The centrifugal pump used in the JP-5 service system is rated at what capacity?

1. 20 gpm
2. 150 gpm
3. 1,100 gpm
4. 1,500 gpm

3-2. The centrifugal pump casing is divided into how many chambers?

1. One discharge and two suction
2. One suction and two discharge
3. Two discharge and two suction
4. One discharge and one suction

3-3. The centrifugal pump has four wearing rings. Two wearing rings are installed in the pump casing between the suction and discharge chambers. Where are the other two wearing rings installed?

1. On the pump shaft
2. In the discharge chamber
3. In the suction chamber
4. On the impeller

3-4. What is the purpose of wearing rings?

1. To act as bearings for the pump shaft
2. To minimize leakage between the suction and discharge chambers
3. To allow for the wear created between the impeller and pump casing
4. Both 2 and 3 above

3-5. The centrifugal pump impeller is centered and secured in the pump casing by what devices?

1. Shaft sleeves and wearing rings
2. Shaft sleeves and shaft nuts
3. Bearing caps and shaft nuts
4. Bearing caps and shaft sleeves

3-6. What devices prevent fuel from leaking out of the pump case around the pump shaft?

1. Mechanical seals
2. Shaft collars
3. Flinger rings
4. All of the above

3-7. Mechanical seals are used because of their durability and will not often break, even if they are dropped on a hard surface.

1. True
2. False

3-8. The ball bearings on the centrifugal pump shaft are lubricated by what means?

1. The circulating JP-5
2. Self-priming oil pump
3. Grease fittings
4. Oil reservoir

3-9. Rotary vane pumps used for stripping are designed to pump approximately how many gallons per minute and at what pressure?

1. 50 gpm at 25 psi
2. 50 gpm at 50 psi
3. 200 gpm at 25 psi
4. 200 gpm at 50 psi

3-10. Rotary vane pumps used for transferring are designed to pump approximately how many gallons per minute at what pressure?

1. 50 gpm at 25 psi
2. 50 gpm at 50 psi
3. 200 gpm at 25 psi
4. 200 gpm at 50 psi

3-11. On a rotary vane pump, which component houses the ball bearings and mechanical seals?

1. Cylinder
2. Cylinder heads
3. Rotor and shaft assembly
4. Cylinder bore

3-12. To allow for the escape of liquid between the vanes and-slots of the rotor, the vanes have relief grooves on the

1. forward faces
2. rear faces
3. outside tips
4. inside tips

A. Rex chain

B. Direct drive

C. Falk type-F steelflex

D. Lovejoy

FIGURE 3-A

IN ANSWERING QUESTIONS 3-13 THROUGH 3-15, SELECT FROM FIGURE 3-A THE TYPE OF PUMP COUPLING DESCRIBED IN THE STATEMENT.

3-13. The coupling halves are cushioned by a formed rubber spider.

1. A
2. B
3. C
4. D

3-14. A flexible gridmember engages the teeth in the hubs to transmit power.

1. A
2. B
3. C
4. D

3-15. It resembles small bicycle sprockets placed side by side with a double wide chain connecting the two.

1. A
2. B
3. C
4. D

3-16. Which type of valve is most commonly used for throttling fuel flow?

1. Globe
2. Gate
3. High performance butterfly
4. Rotary plug

3-17. What valve design allows no metal-to-metal contact during regular operations?

1. A globe
2. A gate
3. A high performance butterfly
4. A rotary plug

3-18. What valve should be used where a straight flow with a minimum amount of restriction is desired?

1. A globe
2. A gate
3. A high performance butterfly
4. A modified globe

3-19. What component on the limitorque valve operator operates the OPEN and CLOSE position indicator lights for the valve?

1. The handwheel
2. The console relay switch
3. The valve stem
4. The limit switches

3-20. If a one-way check valve has no directional flow arrow, how can You identify which end is the inlet?

1. It will have female threads
2. It will have male threads
3. It will have the hinge pin
4. It is the side without the hinge pin

3-21. Valve manifolds are made up of what type of modified valve?

1. Globe
2. Gate
3. One-way check
4. Rotary plug

3-22. What device ensures the disk is centered into the base of the valve body in a manifold?

1. Valve stem
2. Gate guide
3. Plug guide
4. Disk guide

3-23. What device prevents leakage around the valve stem of a manifold?

1. O-ring
2. Gasket
3. Packing
4. Plug

3-24. On a manifold, what is the name of the pipe connecting the mainside valve to the tankside valve?

1. Nozzle
2. Coupler
3. Flange joint
4. Tube

3-25. When tanks are ballasted, what must be done to the tankside valve?

1. It must be pinned closed
2. It must be bolted closed
3. It must be locked closed
4. It must be tagged closed

3-26. What type of manifold should be used for the tanktop valves in the stripping system?

1. Double-valved manifold
2. Single-valved manifold
3. Flood and drain manifold
4. Sliding gate manifold

3-27. Which of the following is NOT a function of the flood and drain manifold?

1. Stripping
2. Transferring
3. Ballasting
4. Deballasting

3-28. What device on the flood and drain manifold allows only one valve to be opened at a time?

1. A rotating hook locking device
2. A pinning device
3. A latch-type locking device
4. A sliding bar locking device

3-29. What are the three chambers inside the fuel filter?

1. Sump, separator, and outlet
2. Sump, separator, and inlet
3. Inlet, sump, and outlet
4. Inlet, fallout, and outlet

3-30. What components are inserted in the threaded holes that are symmetrically arranged over the surface of the tube sheets?

1. Coalescer elements
2. Filter element mount assemblies
3. Separator elements
4. Vent lines

3-31. Leakage is prevented at the ends of the filter elements by the

1. smooth surface of the end caps forming a tight seal with rubber gaskets on the elements
2. fiber washers on the elements forming a tight seal against the knife edges on the end caps
3. end caps of the elements being assembled with fiber washers to form a tight seal
4. knife edges on the end caps projecting into the synthetic rubber gaskets on the elements

3-32. In what direction does fuel flow through the coalescer element?

1. Outside to inside
2. Inside to outside
3. Top to bottom
4. Bottom to top

3-33. Separator elements are considered permanent elements and are not replaced unless they become damaged.

1. True
2. False

3-34. When fuel flows from the coalescer elements to the separator elements, the coalesced water falls out of the fuel by gravity. In which chamber does this take place?

1. Outlet
2. Inlet
3. Fallout
4. Water receiving sump

3-35. The manhole cover installed on the side of the filter allows entrance to which chamber?

1. Outlet
2. Inlet
3. Fallout
4. Water receiving sump

3-36. Fuel passing from the fallout chamber to the outlet chamber must go through the

1. coalescer elements
2. separator elements
3. sump
4. water drain valve

3-37. The separator elements have the capability to only filter solid contaminants larger than how many microns?

1. 1
2. 5
3. 10
4. 20

3-38. The rotary control valve is bolted to what part of the filter?

1. Inlet chamber
2. Fallout chamber
3. Outlet chamber
4. Water receiving sump

3-39. What devices are provided to determine the pressure drop across the filter elements?

1. Air gates
2. Pressure gages
3. Sight glasses
4. Flow indicators

3-40. What is the rated capacity of the service fuel filter?

1. 1,100 gpm
2. 2,000 gpm
3. 2,100 gpm
4. 2,400 gpm

3-41. What is the typical pressure drop limit on the fuel filter?

1. 10 psi
2. 15 psi
3. 17 psi
4. 20 psi

3-42. Filter samples should be taken at the start of the initial flow and at what intervals thereafter?

1. Every 10 minutes
2. Every 15 minutes
3. Every 30 minutes
4. Every 60 minutes

3-43. What provides a cushioning effect when the automatic shutoff valve is opened by the filter discharge pressure acting under the valve seat?

1. A tension spring in the lower valve chamber
2. A tension spring in the upper valve chamber
3. Fuel pressure acting on the bottom of the diaphragm
4. Fuel pressure acting on the top of the diaphragm

3-44. When the eductor causes a decrease in fuel pressure on top of the diaphragm of the shutoff valve, how will the shutoff valve be affected?

1. The filter discharge pressure will open the valve
2. The filter discharge pressure will close the valve
3. The tension spring will close the valve
4. The increase in filter discharge pressure applied to the top of the diaphragm will open the valve

3-45. What causes the automatic shutoff valve to close when the pilot valve closes?

1. Fuel pressure acting on the bottom of the diaphragm in the automatic shutoff valve
2. Fuel pressure being directed through the eductor suction line to the top of the cover chamber of the automatic shutoff valve
3. Fuel pressure being directed to the top of the diaphragm in the automatic water drain valve
4. Fuel pressure being directed to the bottom of the diaphragm in the automatic water drain valve

3-46. What are the operating positions of the rotary control valve?

1. Down and up only
2. Down and horizontal only
3. Horizontal and up only
4. Down, horizontal, and up

3-47. What valve directs filter pressure through its ports to the tops of the diaphragms of the pilot and automatic water drain valves?

1. The pilot valve
2. The automatic shutoff valve
3. The rotary control valve
4. The automatic water drain valve

3-48. When there is little to no water passing through the fuel filter and the ball float is in the DOWN position, the rotary control valve directs filter pressure to. and vents it to, which valves?

1. Directs to the top of the water drain valve and vents the top of the pilot valve
2. Directs to the bottom of the water drain valve and vents the top of the pilot valve
3. Directs to the top of the water drain valve and vents the bottom of the water drain valve
4. Directs to the top of the automatic shutoff valve and vents the top of the water drain valve

3-49. When all valves of the filter hydraulic system are open and coalesced water is draining from the sump, in what position will the ball float be?

1. Down
2. Vertical
3. Horizontal
4. Up

3-50. Under which of the following conditions will the pilot and automatic shutoff valves be closed?

1. The float is in the DOWN position with no water drainage required
2. The float is in the HORIZONTAL position and the accumulated water is draining
3. The float is in the UP position and the accumulated water is not draining fast enough
4. During normal operations

3-51. Which of the following is often the most likely cause of a filter hydraulic control system failing to operate properly?

1. Manually operated valves improperly aligned
2. The tubing has obstructions or is dented
3. The automatic valves are improperly installed
4. Too much water in the fuel

3-52. During centrifugal purifier operations, where will the solid contaminants be collected after they are separated from the fuel?

1. In the heavy phase outlet
2. On the underside of the disks
3. On the outer edge of the disks
4. On the inside bowl wall

3-53. What part of the purifier acts as a pump?

1. The tubular shaft
2. The paring disk
3. The intermediate disks
4. The distribution holes in the intermediate disks

3-54. What are the ideal operating pressures of the centrifugal purifier?

1. 9 psi inlet and 25 psi outlet
2. 9 psi inlet and 30 psi outlet
3. 9 psi inlet and 35 psi outlet
4. 30 psi inlet and 9 psi outlet

3-55. When the purifier bowl has to be cleaned, which components allow the cover assembly to be rotated open without disconnecting the piping?

1. The cover hinge, inlet, and outlet assembly
2. The feed tube assembly and cover hinge
3. The feed tube assembly and ratchet hook
4. The cover hinge and ratchet hook

3-56. During purifier operations, impure JP-5 is directed into the bowl and purified JP-5 is directed out of the bowl by what force or component?

1. The seal water inlet valve
2. Centrifugal force
3. The feed tube assembly
4. The regulating tube

3-57. What part of the purifier is the shaft for the paring disk?

1. Regulating tube
2. Feed tube
3. Tubular shaft
4. Drive shaft

3-58. The feed tube screws into what device?

1. The feed tube assembly
2. The outlet tube
3. The paring disk
4. The tubular shaft

3-59. What device(s) prevent(s) the purifier from rotating during disassembly and assembly?

1. Spring-loaded handle
2. Three handwheel cover clamps
3. Lock screws
4. Ratchet hook catch

3-60. What component acts as a shock absorber to absorb vertical thrust of the spindle shaft when the purifier is started?

1. Horizontal spring
2. Vertical spring
3. Horizontal ball bearing
4. Vertical ball bearing

3-61. A total of how many sets of ball bearings support the spindle assembly?

1. Five
2. Two
3. Three
4. Seven

3-62. What components help reduce vibration in the operating purifier?

1. Four vertical springs
2. Six vertical springs
3. Four horizontal springs
4. Six horizontal springs

3-63. If the bowl of the purifier is rotating at 4100 rpm, what should the rpm of the speed counter be?

1. 100 to 130
2. 146 to 150
3. 41
4. 410

3-64. What force or device moves the oil in the oil lubrication compartment to supply lubricating oil to the bearings and gears?

1. An oil pump
2. The worm wheel gear
3. A flinger ring
4. A slinger

3-65. What parts of the tubular shaft keep it off the bowl shell and give circular motion to the feed inlet liquid?

1. 6 outer slots
2. 12 outer holes
3. 12 inner spacers
4. 3 unequal pins

3-66. How are the holes in the intermediate disks aligned vertically in the bowl shell?

1. The notch on the inward lip at the top of each disk interlocks with the key on the tubular shaft
2. The notch on the outer lip at the bottom of each disk interlocks on the tubular shaft
3. The notch on the top on each disk is interlocked with a key on the feed tube assembly
4. The notch at the top of the tubular shaft interlocks with a key on each disk

3-67. What is the normal number of intermediate disks in the disk stack?

1. 127
2. 145
3. 147
4. 150

3-68. Which of the following is the only disk not having holes around its base?

1. Disk #1
2. Disk #127
3. Bottom disk
4. Top disk

3-69. Which disk provides a rotating casing for the centripetal pump?

1. Top disk
2. Coupling disk
3. Intermediate disk
4. Paring disk

3-70. The disk stack is compressed to the correct tension by tightening the

1. spindle nut
2. coupling nut
3. coupling ring
4. discharge ring

3-71. What unique characteristic does the feed tube assembly, coupling ring, and coupling nut all have?

1. Light in weight
2. Each has a serial number to match it to a specific purifier
3. Left-handed threads
4. Right-handed threads

3-72. Each purifier is furnished with seven discharge rings. The inside diameters range from

1. 220 millimeters to 280 millimeters in 10 millimeter increments
2. 220 centimeters to 250 centimeters in 5 centimeter increments
3. 220 millimeters to 250 millimeters in 5 millimeter increments
4. 220 millimeters to 227 millimeters in 1 millimeter increments

3-73. When starting the purifier, it should come up to operating speed within how many minutes

1. 5
2. 7
3. 9
4. 11

3-74. When the purifier is in the standby mode, how often should you check the inlet-outlet housing and bowl cover to make sure they are cool to the touch?

1. Every 5 minutes
2. Every 7 minutes
3. Every 10 minutes
4. Every 15 minutes

3-75. The purifier must be cleaned before the wet cake (accumulated solids) exceeds 30 pounds or what thickness?

1. 1/4 in.
2. 1/2 in.
3. 1 1/4 in.
4. 1 1/2 in.

ASSIGNMENT 4

Textbook Assignment: "JP-5 Afloat Below Deck Systems and Operations (continued)," and "JP-5 Afloat Flight Deck Systems and Operations," chapters 4 and 5, pages 4-65 through 5-16.

4-1. What type of gage is normally installed on the suction side of a pump?

1. Simplex
2. Compound
3. Differential
4. Duplex

4-2. Which type of tanks, located between voids, are an integral part of the ship's underwater protective system?

1. Wing
2. Deep centerline
3. Double-bottom
4. Peak

4-3. Why are twin wing tanks emptied and filled as a unit?

1. The rate of flow is increased
2. To preserve the list and trim of the ship
3. The rate of flow is decreased
4. To lessen the chance of contamination

4-4. The top of a double-bottom tank is also the

1. outer shell of the ship
2. vertical bulkhead of the pumproom
3. inner skin of the ship
4. deck of the bilge

4-5. The JP-5 storage tanks are used for bulk storage of JP-5. What is the difference, if any, in JP-5 in a service tank compared to JP-5 in a storage tank?

1. It passed through a filter or centrifugal purifier
2. It was filled directly from the refueling station downcomer
3. It contains clean JP-5 defueled from defueled aircraft
4. None

4-6. What device prevents air pressure from building up or a vacuum from forming in a JP-5 tank when the tank is being emptied or filled?

1. A service suction pipe
2. A transfer suction pipe
3. An air escape riser
4. An overflow line

4-7. Why should you be concerned about ship's side cleaners spray painting near tank air escape vents?

1. The paint could get in the line and contaminate the fuel
2. The paint will mix with the JP-5 and lower its flash point
3. The paint could clog the flame arrester and block the flow of air
4. The paint will dissolve the grease applied during PMS

4-8. What device is installed in the overflow line to prevent overflow from the overflow tank going into another storage tank?

1. Globe valve
2. One-way check valve
3. Gate valve
4. Butterfly valve

4-9. Which of the following fittings is installed at the lower end of a sounding tube?

1. Brass vortex plate
2. Striker plate
3. Brass non-vortex plate
4. Bellmouth fitting

4-10. Which of the following devices is/are installed in the tank at the end of a fill and suction tailpipe?

1. Splash plate
2. Nonvortex fitting
3. Both 1 and 2 above
4. Striker plate

4-11. What is the specified fill rate of JP-5 storage tanks?

1. 500 gpm
2. 200 gpm
3. 300 gpm
4. 400 gpm

4-12. What tanks are the first to be emptied when transferring fuel internally and the last to be filled when receiving fuel aboard?

1. Overflow tanks
2. Service tanks
3. Contaminated tanks
4. Peak tanks

4-13. Where do overflow tanks overflow to when they are full?

1. Other overflow tanks
2. The contaminated tank
3. Overboard
4. Bilge sump tank

4-14. The service tank fill and suction tailpipes are exactly the same as the fill and suction tailpipes for storage tanks.

1. True
2. False

4-15. Each service tank has a recirculating line installed horizontally in the opposite end from the suction tailpipe. How far off the bottom of the tank is the recirculating line installed?

1. 12 in.
2. 18 in.
3. 24 in.
4. 26 in.

4-16. Before you enter any JP-5 tank for inspection or cleaning, the tank must be certified safe for entry by whom?

1. The below decks CPO
2. V-4 division LCPO
3. V-4 division officer
4. The gas-free engineer

4-17. The GEM TLI transmitter mounted vertically within the tank is comprised of magnetic reed switches. At what intervals are the switches capped into the transmitter?

1. 1 in.
2. 2 in.
3. 3 in.
4. 4 in.

4-18. The calibrate potentiometer in the primary receiver is adjusted to what amount of power supply output?

1. 10 volts ac
2. 10 amps ac
3. 10 volts dc
4. 10 amps dc

4-19. What operates the tap switches in the transmitter?

1. Current in the potentiometer
2. The cable system
3. The slosh dampener
4. A magnet in the float

4-20. The tap switches are arranged so voltage drops are read at the receiver after how much float travel ?

1. Every 1/4 in.
2. Every 1/2 in.
3. Every 3/4 in.
4. Every 7/8 in.

4-21. Included in the primary receiver housing are the dc power supply, electrical slosh dampening control, all alarm controls, and the

1. secondary receiver
2. indicating meter
3. ac power supply
4. sounding gage

4-22. After calibration, the toggle switch is held in the FULL REF position and a full-scale meter reading is observed. What should this reading indicate?

1. A ground in the transmitters
2. A ground in the receivers
3. Bad electrical connections
4. Cables and electrical connections are good

4-23. Why is a capacitor connected across the indicating meter?

1. To prevent meter fluctuation caused by sloshing in the tank
2. To prevent a power surge from damaging the indicating meter
3. To indicate a low power supply
4. To indicate high voltage

4-24. The alarm control system (SENS PAK) is normally used for indicating what factor(s) in the tanks?

1. High level
2. Low level
3. Both 1 and 2 above
4. Overflow

4-25. Which SENS PAK alarm control adjustment substitutes the float simulator circuit for the transmitter in the indicating meter circuit for alarm adjustment?

1. Normal simulate switch
2. Float simulator potentiometer
3. High alarm potentiometer
4. Low alarm potentiometer

4-26. On the mimic diagram of the control console, what color is used to indicate the stripping system?

1. Purple
2. Green
3. Red
4. Black

4-27. What manual contains the JP-5 systems operating procedures for a specific ship?

1. Technical Manual for Shipboard Aviation JP-5 Fuel Systems
2. Aviation Fuels Operational Sequencing System (AFOSS)
3. NAVSEA Technical Manual, Chapter 542, Gasoline and JP-5 Systems
4. Aircraft Refueling NATOPS Manual

4-28. What copy of AFOSS would be found in a filter room?

1. Division officer’s copy
2. Work center copy
3. Workstation copy
4. Master copy

4-29. What devices are used to completely empty JP-5 and ballast tanks that have been ballasted before receiving fuel?

1. Main eductors
2. Transfer pumps
3. Auxiliary pumps
4. Stripping pumps

4-30. Before fuel can be pumped Into any tank in a nest of storage tanks, what condition must be met?

1. The service tanks must be full
2. The fuel must be purified
3. The overflow tank for that nest must be empty
4. All other tanks in that nest must be empty

4-31. Typically, what is the minimum number of tanks that should be open when receiving fuel?

1. Six
2. Two
3. Eight
4. Four

4-32. Which of the following is NOT a consideration when you are determining the duration of a receiving operation?

1. Speed of the ship
2. Amount to be received
3. Pumping rate of the tanker
4. Maximum receiving rate

4-33. Underway refueling stations should be manned at least how many minutes before the fueling time?

1. 15 min
2. 30 min
3. 45 min
4. 60 min

4-34. Which tanks are normally filled first during a refueling operation?

1. Double-bottom
2. Wing
3. Service
4. Overflow

4-35. Where is the initial flow of JP-5 directed during an underway replenishment?

1. Service tanks
2. Peak tank
3. Contaminated settling tanks
4. Overboard

4-36. Overflow mains leading into overflow tanks are designed to allow what flow rate of overflow into overflow tanks?

1. 1,000 gpm
2. 1,500 gpm
3. 2,000 gpm
4. 2,500 gpm

4-37. After the initial samples are obtained, how often are samples taken when on-loading fuel?

1. Every 15 min
2. Every 20 min
3. Every 30 min
4. Every 60 min

4-38. A fuel sample fails to meet the cleanliness requirements during a refueling operation. Who makes the final decision on acceptance or rejection of the fuel?

1. The person taking the sample
2. The quality surveillance lab supervisor
3. The division officer
4. The commanding officer

4-39. To obtain maximum settling time, it is standard procedure to purify into the in-use service tank.

1. True
2. False

4-40. What is the settling time for JP-5 per foot of height?

1. 1 hr
2. 6 hr
3. 3 hr
4. 12 hr

4-41. When underway, JP-5 service tanks are stripped daily and what other times?

1. Every 3 hours
2. Every 6 hours
3. Just before use
4. Just before pulling inport

A. Stripping main valves to the stripping pump suction header

B. Flood and drain manifold valve to the stripping main

C. Single-valved stripping manifold valve to the tank to be stripped

D. Stripping pump discharge valve

E. Cutout valve from the discharge header to the contaminated storage tank

F. Stripping pump inlet valve

IN ASWERING QUESTION 4-42, REFER TO FIGURE 4-A.

FIGURE 4-A

4-42. Select the sequence in which you should open the valves before starting-the storage tank stripping pumps.

1. B, C, A, D, F, E
2. C. B, A, E, F, D
3. C, B, A, F, D, E
4. A, B, C, F, D, E

4-43. The pipe capacity is 120 gallons and the pump capacity is 50 gallons a minute. Approximately how many minutes must elapse after the stripping operation has started on the next storage tank before a conclusive sample of JP-5 can be taken?

1. 5
2. 2
3. 3
4. 4

4-44. How should you minimize vibration when starting the purifier with a dirty bowl?

1. By admitting seal water immediately after pressing the START button
2. By filling the purifier with fuel from the transfer pumps
3. By starting the transfer pumps before you start the purifier
4. By pumping out the sump tank to make sure all the fuel in the purifier has drained out

4-45. The motor-driven stripping pump is used to consolidate the last 24 inches remaining in the storage tanks. The pump's discharge header is aligned so that this fuel is discharged into the

1. stripping tailpipes
2. overflow tank
3. transfer main
4. contaminated settling tank

A. Service tank

B. Downcomer

C. Service pump discharge header

D. Transfer main

E. Transfer pump discharge header

F. Filling connection

G. Service pump

IN ANSWERING QUESTION 4-46. REFER TO FIGURE 4-B

FIGURE 4-B

4-46. Select the correct sequence of flow when off-loading JP-5 from a service tank.

1. A, G, C, E, D, B, F
2. A, C, G, E, D, B, F
3. A, G, C, E, B, D, F
4. A, C, G, B, E, D. F

4-47. Which of the following operations requires flushing the entire JP-5 service system?

1. Shipyard overhaul
2. Major rework on the system
3. Drainback for maintenance
4. Each of the above

4-48. Where are samples of JP-5 obtained when flushing the service system?

1. From a test connection on the pressure fueling nozzle
2. From the telltale valve on the double-valved manifold
3. From the sample connection in the aft-service pump discharge header
4. Both 2 and 3 above

4-49. What is the Navy’s largest pollution problem?

1. Air pollution
2. Noise pollution
3. Dioxin pollution
4. Oil pollution

4-50. Which of the following is an incorrect statement about the functions of the Cla-Val fuel/defuel valve?

1. It acts as an emergency shutoff valve
2. It evacuates the entire piping system
3. It maintains a constant discharge pressure
4. It relieves discharge pressure rising above a predetermined level

4-51. In the main valve, the fueling valve and defueling valve each uses a well supported and reinforced diaphragm as its operating means. Normally each valve is in what position?

1. The fueling valve is spring-loaded open and the defueling valve is held open by its weight
2. The fueling valve is spring-loaded closed end the defueling valve is held open by its own weight
3. The fueling valve is held closed by its own weight and the defueling valve is spring-loaded open
4. The fueling valve is held open by its own weight and the defueling valve is spring-loaded closed

4-52. Which valve in the Cla-Val unit controls the delivery pressure when the main valve is in the fueling mode?

1. Fueling pressure relief control valve
2. Defueling pressure relief control valve
3. Pressure reducing control valve
4. Hytrol valve

4-53. Spring action holds which of the following valves open?

1. Fueling pressure relief control valve
2. Defuellng pressure relief control valve
3. Defueling main valve
4. Pressure reducing control valve

4-54. Which valve shifts the Cla-Val unit from the defuel to the fuel mode of operation, and from the fuel to the defuel mode of operation?

1. SOPV
2. Hytrol valve
3. Defueling valve
4. Pressure reducing control valve

4-55. Which valve prevents the fuel hose from charging too quickly by controlling the reaction time of the fueling valve?

1. Flow control valve
2. SOPV
3. Fueling pressure relief control valve
4. Pressure reducing control valve

4-56. When there is an increase in the downstream pressure that is high enough to overcome the force of the spring in the defueling pressure relief control valve, which of the following valves will open?

1. The SOPV, both relief valves, and the defueling valve
2. The defueling pressure relief control valve and the defueling valve
3. The pressure reducing control valve and both pressure relief control valves
4. The flow control valve

4-57. When adjusting the delivery pressure on the Cla-Val station, what pressure should you adjust the pressure reducing control valve to first?

1. 10 psi higher than the desired delivery pressure
2. 10 psi lower than the desired delivery pressure
3. At the desired delivery pressure
4. 0 psi

4-58. When the final adjustment on the Cla-Val is made, at what pressure will the fueling valve's pressure relief control valve be set?

1. 10 psi higher than the delivery pressure
2. 7 1/2 psi higher than the delivery pressure
3. 5 psi higher than the delivery pressure
4. 2 1/2 psi higher than the delivery pressure

4-59. In a swing joint, what device connects the continuity wire to the spider assembly?

1. An amphonel gasket
2. A spider joint
3. A nylon collar
4. An amphonel stud

4-60. What device prevents the hose reel from moving when it is not in use?

1. A gear chain
2. A manual brake
3. A locking pin
4. An automatic catch

4-61. What is the standard length for a completely assembled 2 1/2-inch collapsible hose?

1. 20 ft
2. 25 ft
3. 40 ft
4. 50 ft

4-62. After cutting back and pressure testing a fuel hose, which of the following actions must you take before fueling aircraft with that hose?

1. Flush the hose
2. Sample the hose
3. Test the sample on the CFD to see if it is acceptable
4. Each of the above

4-63. The quick-disconnect has female threads on one end to accept the hose coupling. What device(s) is/are used to connect the other end to the male end of the nozzle adapter?

1. 3/8-inch nuts and bolts
2. A female ball bearing quick release
3. A pie flange
4. Swedge locks

4-64. What part of the pressure refueling nozzle houses the operating linkage?

1. Collar assembly
2. Nose seal assembly
3. Body
4. Poppet

4-65. Gravity fueling nozzles are blocked open when being used on the same station as pressure refueling nozzles.

1. True
2. False

4-66. Portable defuel pumps are operated by what force?

1. The service system riser pressure
2. The power take-off (PTO) of a tow tractor
3. The ship’s low pressure air
4. The ship’s high pressure air

4-67. What will happen to the solenoid on the Cla-Val if continuity is broken in any place?

1. It will reenergize with a 5-second delay
2. Its warning buzzer will emit an audible alarm
3. It will immediately reenergize
4. It will remain energized until the toggle switch on the nozzle is placed in the OFF position

4-68. If a hose ruptures while you are fueling and the continuity circuit is not broken, what, if anything, will happen?

1. The hose will shift into the defuel mode
2. The defuel pump on the station will automatically shut off causing the Cla-Val to shift to the defuel mode
3. The fuel hose will self seal
4. Nothing

ASSIGNMENT 5

Textbook Assignment: "JP-5 Afloat Flight Deck Systems and Operations (continued),” “Afloat MOGAS and Lube Oil Systems and Operations,” and “Ashore Systems and Operations," chapters 5, 6, and 7, pages 5-16 through 7-8.

5-1. The checker requests the fuel load from an aircraft.The pilot responds with four fingers held vertically followed by three fingers held horizontally. How much fuel is in the aircraft?

1. 4,300 gallons
2. 4,300 pounds
3. 4,800 pounds
4. 430 pounds

5-2. What is the minimum number of personnel required to fuel an aircraft?

1. Five
2. Two
3. Three
4. Four

5-3. If you are fueling an aircraft in the hanger bay and there is no roving fire-fighting equipment manned, you must have a portable fire extinguisher nearby. What other equipment on the flight deck normally satisfies this requirement?

1. The flight deck sprinkler system
2. The catapult steam smothering system
3. The flight deck AFFF stations
4. The flight deck P-16

5-4. What is the maximum time a fuel hose can go without sampling and testing and still be used to fuel aircraft?

1. 12 hr
2. 24 hr
3. 26 hr
4. 32 hr

5-5. The grounding wire connecting sequence for the pressure fueling nozzle is from the

1. deck to the aircraft
2. aircraft to the deck
3. deck to the nozzle
4. nozzle to the deck

5-6. Since most personnel in a refueling crew are experienced, squadron personnel are not required to be present when fueling aircraft.

1. True
2. False

5-7. The flow control handle of the pressure refueling nozzle must be placed in the FULLY OPEN or FULLY CLOSED position. Why is the handle not allowed to “float” when refueling?

1. To prevent excessive wear on the aircraft adapter and the nozzle poppet
2. To ensure the station will go into the defuel mode if an emergency occurs
3. The time it takes to refuel the aircraft will double
4. The possibility of contamination is increased

5-8. Who is responsible for ensuring the aircraft is fueled to the correct fuel load?

1. Crewleader
2. Yellow shirt
3. Air Boss
4. Plane captain

5-9. Which of the following statements is/are correct concerning hot refueling?

1. No static samples can be taken
2. Pilot-in-command changes are not permitted
3. The aircraft cannot be refueled if it fails precheck
4. All of the above

5-10. To defuel an aircraft, a written request must be submitted to and approved by whom?

1. V-4 Division Officer
2. Air Boss
3. Aircraft Handling Officer
4. Control talker

5-11. Prior to defueling an aircraft, a sample must be drawn and tested for which of the following?

1. Flash point
2. Free water
3. Sediment
4. All of the above

5-12. All personnel directly involved in fueling or defueling operations must wear the proper safety gear. This gear includes a cranial, goggles, jersey, gloves, and life vest. However, when the ship is not at flight quarters, only goggles are required.

1. True
2. False

5-13. Whose job is it to check the fuel loads on incoming aircraft?

1. Crewleader
2. Flight deck chief
3. Nozzleman
4. Checker

5-14. The aviation lube oil system is operated according to what system?

1. ALOSS
2. LOOSS
3. DLOSS
4. CFASS

5-15. When taking on lube oil, the tanks should not be filled beyond what capacity?

1. 80%
2. 85%
3. 90%
4. 95%

5-16. What is used to determine the frequency of maintenance required on the lube oil pump?

1. MDC
2. PMS
3. IRS
4. PQS

5-17. The MOGAS system is operated according to what system?

1. CFOSS
2. EOSS
3. AFOSS
4. ALOSS

5-10. The fundamental law of hydraulics is that any pressure or force applied to a confined liquid will be transmitted equally and undiminished in all directions regardless of the size of the container.

1. True
2. False

5-19. Why does gasoline float on water?

1. Unit by unit, gasoline weighs less than water
2. Unit by unit, gasoline weighs more than water
3. Atmospheric pressure has more of an effect on water
4. Water is lighter than gasoline

5-20. Gasoline systems are designed to be full at all times to prevent what occurrence?

1. The gasoline from overflowing
2. Over-pressurizing the tanks
3. The buildup of contaminants
4. Explosive mixtures forming in air pockets

5-21. A saddle-type gasoline storage tank is actually a combination of how many tanks?

1. One tank and two cofferdams
2. Two tanks and one cofferdam
3. Two tanks and two cofferdams
4. One tank and one cofferdam

5-22. What device connects the outer tank to the draw-off tank?

1. A sluice pipe
2. A diffuser
3. A cross connect
4. The outer tank service riser

5-23. What gasoline tank is the first to be filled and last to be emptied of MOGAS?

1. Outer tank
2. Cofferdam
3. Service tank
4. Draw-off tank

5-24. What is the cofferdam normally filled with for protection?

1. Water
2. Gasoline
3. CO_2 or N_2
4. JP-5

5-25. When cofferdams are charged with nitrogen, what percentage of inertness must be maintained?

1. 25%
2. 50%
3. 75%
4. 85%

5-26. When cofferdams are charged with carbon dioxide. what percentage of inertness must be maintained?

1. 25%
2. 30%
3. 35%
4. 50%

5-27. The pressure-relief valve in the bypass line of the air escape riser is set at what psi?

1. 1 psi
2. 2 psi
3. 3 psi
4. 4 psi

5-28. When the gasoline storage tanks are 100% full of seawater, what will the differential pressure gage read?

1. 100
2. 2
3. 0
4. 4

5-29. What is unique about the float used in a MOGAS system TLI?

1. It sinks in water
2. It sinks in fuel
3. It does not contain a magnet

5-30. What device ensures back-pressure is maintained on the tanks to force gasoline to the suction side of the gasoline pumps?

1. A priming pump
2. An elevated loop in the overboard discharge line
3. A venturi installed in the discharge line
4. The downsized discharge piping

5-31. What device is designed to break the syphoning effect of the overflow loop?

1. A swing check valve
2. A sight glass
3. A spectacle flange
4. A vent line

5-32. To what pressure is the outer jacket of the double-walled piping pressurized with inert gas?

1. 12 psi
2. 15 psi
3. 3 psi
4. 5 psi

5-33. What device is provided in the bellows of the double-walled piping to inspect for fluid inside the double-walls?

1. A bolted manhole cover
2. An easy-open hatch
3. Sight glasses
4. Drain plugs

5-34. Constant pressure is maintained in the automatic pressure regulating system by balancing the spring tension in the pilot valve against what pressure?

1. The spring pressure in the main valve
2. The ejector strainer spring pressure
3. The venturi throat pressure
4. The station discharge pressure

5-35. What device prevents chatter of the main valve in the pressure regulating system?

1. The venturi
2. The ejector strainer assembly
3. The recirculating line
4. The reinforced diaphragm in the main valve

5-36. What is the function of the control valve in the automatic pressure regulating system?

1. To control discharge pressure
2. To reduce the violence with which pump pressure is admitted to the main valve cover chamber
3. To close the main valve during a sudden buildup in downstream pressure
4. To direct fuel flow to the venturi

5-37. A recirculating line on the delivery side of the venturi tube returns what percent of the capacity of the booster pump?

1. 3%
2. 5%
3. 7%
4. 10%

3-36. Why is a metal bellows used instead of fiber packing in the sylphon packless globe valve?

1. The fiber packing shrinks or deteriorates
2. The metal bellows never requires replacement
3. The fiber packing will hold a static charge
4. The metal bellows will not corrode

5-39. The pressure relief valve for the cofferdam is set at what psi?

1. 7 psi
2. 10 psi
3. 14 psi
4. 50 psi

5-40. How long after the fixed CO_2 system is activated will the CO_2 actually be discharged?

1. 5 sec
2. 10 sec
3. 15 sec
4. 30 sec

5-41. When the CO_2 flooding system is activated, which of the following actions will NOT automatically happen?

1. A warning bell will ring in the space
2. A visual alarm will show outside the space
3. The electrically operated hatches will open
4. The ventilation motors will stop

5-42. What is the maximum allowable capacity of MOGAS that can be brought onboard when the ship is alongside a pier?

1. 75%
2. 80%
3. 85%
4. 95%

5-43. What is the normal maximum allowable tanktop pressure when filling the MOGAS tank?

1. 3 psi
2. 23 psi
3. 25 psi
4. 45 psi

5-44. The MOGAS transfer pump is NOT to be started if the temperature in the discharge header exceeds how many degrees?

1. 75°F
2. 90°F
3. 95°F
4. 100°F

5-45. How many changes of seawater are required to ensure proper flushing of the MOGAS tanks?

1. One
2. Two
3. Three
4. Four

5-46. The filter/separator used on shore activities is designed to remove what percent of solid and water contaminants ?

1. 98% of all solids and 98% of all water
2. 100% of all solids and 98% of all water
3. 98% of all solids and 100% of all water
4. 100% of all solids and 100% of all water

5-47. The manual water drains on the filter/separator are connected to what component(s)?

1. A recirculation line going back into the tank
2. A recovery system
3. The shore activity’s sewer drain lines
4. The fuel monitor

5-48. Which of the following locations requires a filter/separator?

1. The suction side of transfer pumps
2. The storage tank to storage tank transfer lines
3. The water drain line
4. The supply piping from the storage tanks to aircraft refueler truck fill stands

5-49. Fuel quality monitors have fuses installed inside. What part of the fuse absorbs water?

1. The paper pleat
2. The sensing washers
3. The fiberglass core
4. The paper plug

5-50. At least how long must fuel maintain contact with the metal walls of a relaxation chamber?

1. 1 min
2. 5 min
3. 30 sec
4. 45 sec

5-51. All hoses used on shore activities should meet which of the following requirements?

1. Collapsible
2. Non-collapsible
3. 25 feet in length
4. Equipped with a continuity wire in the center of the hose

5-52. The hose end pressure regulator installed with the nozzle assembly is set for what maximum psi?

1. 45 psi
2. 50 psi
3. 55 psi
4. 60 psi

5-53. The loading systems on a loading rack are approved for multiproduct use.

1. True
2. False

5-54. Above-ground tanks must be surrounded by an enclosure capable of holding the entire capacity of the tank, plus how much freeboard?

1. 1 ft
2. 2 ft
3. 5 ft
4. 7 ft

5-55. The transfer line on a shore activity is 8 inches in diameter. The letters identifying the product are required to be what size?

1. 1 in.
2. 2 in.
3. 3 in.
4. 4 in.

ASSIGNMENT 6

Textbook Assignment: "Ashore Systems and Operations (continued)," and "Administration," chapters 7 and 8, pages 7-8 through 8-10.

6-1. Aircraft direct refueling systems are normally used for what function?

1. To defuel aircraft
2. To fuel support equipment
3. To hot refuel aircraft
4. To fill refueler trucks

6-2. Mobile refuelers are normally used for what function?

1. To hot refuel aircraft
2. To act as a recovery system
3. To cold-refuel aircraft
4. To load barges

6-3. The bottom loading equipment of a mobile aircraft refueler must be capable of receiving at least how many gallons per minute?

1. 300 gpm
2. 600 gpm
3. 900 gpm
4. 1,200 gpm

6-4. Vehicles used for fueling aircraft must have how many fire extinguishers installed?

1. One
2. Two
3. Three
4. Four

6-5. Which of the following markings is used to identify a refuel and defuel truck?

1. JP-4 Jet Fuel F-40
2. JP-5 Jet Fuel F-44
3. Contaminated
4. Jet Fuel/JP

6-6. Refueler/defuelers and defuelers have a maximum defuel rate of

1. 50 gpm
2. 75 gpm
3. 100 gpm
4. 1,000 gpm

6-7. In a refueler and defueler, the hose evacuation system is used for defueling.

1. True
2. False

6-8. Daily checks on aircraft fueling equipment are good for a maximum of how many hours?

1. 12
2. 24
3. 3
4. 4

6-9. During the daily inspection of a refueler, water is found when the low points are trained. What action should you take?

1. Notify the air operations officer and have all aircraft fueled with that refueler recalled
2. Flush the refueler
3. Redrain the low points until a clear sample is obtained
4. Reclassify the fuel as contaminated

6-10. Fuel trucks that are more than half full are limited to a recirculation time of how many minutes?

1. 10
2. 15
3. 3
4. 5

6-11. Weekly checks are performed weekly and when a piece of equipment is being returned to service after being down for more than how many hours?

1. 12 hr
2. 24 hr
3. 48 hr
4. 72 hr

6-12. When are engine spark checks performed?

1. Every week
2. In the morning
3. In the afternoon
4. At night

6-13. Unless element problems require an earlier change, how often are filter and monitor elements changed?

1. Every 6 months
2. Every year
3. Every 3 years
4. Every 5 years

6-14. Filter and monitor elements require changing if the pressure drop across either unit reaches what total use?

1. 15 psi
2. 20 psi
3. 25 psi
4. 30 psi

6-15. Filter and monitor elements require changing if the pressure drop across both units reaches what total psi?

1. 15 psi
2. 20 psi
3. 25 psi
4. 30 psi

6-16. What problem may be indicated by a significant drop in differential pressure?

1. An element rupture
2. A leak in the downstream side from the filter or monitor
3. Clogged elements
4. Excessive water in the feed fuel

6-17. Which of the following operations must be immediately terminated if a spill or leak of any size occurs?

1. Sampling
2. Hot refueling
3. Cold refueling
4. Refueling support equipment

6-18. Large spills require handling by the Spill Response Team. What size spill is/are considered a large spill?

1. More than 10 square feet
2. Greater than 10 feet in any direction
3. More than 50 square feet
4. Both 2 and 3 above

6-19. What is the minimum number of personnel required when cold refueling aircraft at a pit?

1. Five
2. Two
3. Three
4. Four

6-20. Which of the following is a characteristic of deadman controls?

1. They are normally blocked open to allow the operator to perform other duties
2. They are never blocked open
3. They are used only in pits
4. They are used only when hot refueling aircraft

6-21. Before being filled from a truck fill stand, completely empty trucks must have approximately how many gallons of fuel pumped into them at a low flow rate from another truck?

1. 100 to 1,000
2. 250 to 500
3. 500 to 1,000
4. 100 to 500

6-22. What is the closest a truck may get to an aircraft?

1. 10 ft
2. 20 ft
3. 25 ft
4. 50 ft

6-23. Refuelers and refueler/defuelers are NEVER left pointing toward any part of an aircraft.

1. True
2. False

6-24. What is the minimum number of personnel required to fuel an aircraft by truck?

1. Five
2. Two
3. Three
4. Four

6-25. Why should a window be open when the engine of a truck is idling?

1. To prevent carbon monoxide building up in the cab
2. To allow the operator to hear refueling commands
3. So the operator can reach the power take off
4. So the operator can get out in case of a fire

6-26. When refueling with a truck, who is responsible for making sure the fire-fighting equipment is manned before starting the refueling operation?

1. Nozzleman
2. Refueling operator
3. Coordinator
4. Director

6-27. If a refueler operator has to leave his truck unattended. what is the first action taken?

1. Chock the wheels
2. Set the parking brakes
3. Stop the engine
4. Drive the truck clear of aircraft

6-28. Why are pantographs preferred over hoses for hot refueling operations?

1. Pantographs are easier to stow
2. Pantographs are less likely to be run over
3. Pantographs are less likely to rupture
4. Pantographs are easier to repair

6-29. When hot refueling, it is acceptable for the hose or pantograph to pass under the aircraft as long as the fueling coordinator is aware of the situation.

1. True
2. False

6-30. What special safety precaution must be followed if you are hot refueling a helicopter by truck without using a pantograph?

1. Two fire-fighting units must be manned
2. An extra length of hose must be added to the truck
3. The rotor blades must be disengaged

6-31. Piggyback refueling is conducted only with properly configured vehicles and under the direct supervision of whom?

1. Fuels division LPO
2. Fuels division LCPO
3. Fuels maintenance officer
4. Commanding officer

6-32. Who maintains a list of squadron personnel authorized to request a defuel?

1. Fuels division LPO
2. Fuels division LCPO
3. Fuels maintenance officer
4. Executive officer

6-33. When defueling aircraft on shore activities, the aircraft being defueled must be at least how far away from other structures and aircraft?

1. 10 ft
2. 25 ft
3. 50 ft
4. 100 ft

6-34. Defueled fuel containing leak detection dye is considered contaminated and cannot be reissued to aircraft.

1. True
2. False

6-35. During a defuel operation, the pump starts to lose prime or cavitates. At least how much time must pass before the supervisor authorizes a restart?

1. 1 min
2. 3 min
3. 5 min
4. 10 min

6-36. What is the first choice in disposing nonsuspect fuel defueled from an aircraft?

1. Use it to refuel aircraft from the same squadron of the defueled aircraft
2. Sell it
3. Issue it to aircraft scheduled for immediate sea duty
4. Use it to refuel helicopters

6-37. If a mobile refueler carrying JP-4 is changed to carry JP-5, what procedures must be followed?

1. Drain and fill with JP-5
2. Drain, flush with JP-5, drain again, and fill with JP-5
3. Drain, steam clean, dry, and fill with JP-5
4. Drain, gas free, and fill with JP-5

6-38. If a mobile refueler carrying JP-5 is changed to carry JP-4, what procedures must be followed?

1. Drain and fill with JP-4
2. Drain, flush with JP-4, drain again, and fill with JP-4
3. Drain, steam clean, dry, and fill with JP-4
4. Drain, gas free, and fill with JP-4

6-39. Smoking, spark or flame producing items, and open flames or hotwork are not permitted within how many feet of a refueling operation?

1. 50
2. 75
3. 100
4. 500

6-40. Aircraft refueling/defueling operations are not allowed to be conducted within how many feet of ground radar equipment?

1. 300
2. 500
3. 700
4. 1,000

6-41. Fuel vapors will collect in pits. sumps, and open sewers because the vapors are

1. lighter than air
2. heavier than air
3. warmer than air
4. cooler than air

6-42. Technical publication libraries serve what function?

1. A place to submit 3-M feedback reports
2. A central storage area for outdated but useful manuals
3. A central source of up-to-date technical information for personnel
4. A place to turn in parts for technical inspection

6-43. What type of manual contains a description of a system and instructions for its effective use?

1. 3-M manual
2. Maintenance manual
3. Operational manual
4. MRCs

6-44. Which of the following is an example of a maintenance manual containing a description of individual systems for the purpose of maintenance and repair?

1. Aircraft Refueling NATOPS Manual
2. Ship's Maintenance Material Management Manual
3. COMNAVAIRPAC/LANTINST 3100.4, Air Department Standard Operating Procedures
4. Maintenance Manual for Motor Driven JP-5 Transfer Pump, Type TG3DBCX-337

6-45. Technical/Maintenance manuals do NOT contain which of the following?

1. Theory of operation
2. Preventive maintenance procedures
3. Parts breakdown and numbers
4. Operating and design limits

6-46. Which of the following documents contains the provisions for its own cancellation?

1. An instruction
2. A Naval Ships Technical Manual
3. A maintenance requirement card
4. A notice

6-47. If a change is issued for a publication in your technical library, when should that change be made?

1. Immediately upon receipt
2. Within 7 days of receipt
3. Within 30 days of receipt
4. The next time the publication is required for use

6-48. Checklists can be tailored to fit specific equipment, but what requirements MUST be met in any checklist?

1. Tools required
2. Man-hours required
3. Preventive maintenance required
4. Intended use of the equipment

6-49. What is the purpose of checker cards?

1. To account for fuel issued to each aircraft
2. To check which fueling has been sampled
3. To tell how much fuel is in the service tanks
4. To check which aircraft has been sampled

6-50. A casualty is an equipment malfunction that reduces the unit's ability to perform its primary mission because it cannot be repaired within a maximum of how many hours?

1. 6
2. 12
3. 24
4. 48

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